

## CLAIMS

What is claimed is:

- 1    1.    A method for signal line termination, the method comprising:  
2            sensing a current flowing through a termination node which terminates a  
3            plurality of signal lines; and  
4            adjusting a voltage at the termination node to reduce a magnitude of the  
5            current.
  
- 1    2.    A method as in claim 1, wherein a voltage regulator adjusts the voltage based  
2            on the current that is sensed.
  
- 1    3.    A method as in claim 2, wherein the voltage regulator increases the voltage  
2            when the current is flowing out of the termination node from the signal lines;  
3            and, the voltage regulator decreases the voltage when the current is flowing  
4            into the termination node into the signal lines.
  
- 1    4.    A method as in claim 1, wherein signals transmitted on the plurality of signal  
2            lines are substantially balanced.
  
- 1    5.    A method as in claim 4, wherein the plurality of signal lines comprises a pair  
2            of differential signals.

- 1 6. A method as in claim 4, wherein an average of less than two lines are used to  
2 transmit each bit of information in the plurality of signal lines.
- 1 7. A method as in claim 1, wherein the current results from terminating a first  
2 signal line carrying a balanced signal and a second signal line carrying a  
3 compliment of the balanced signal.
- 1 8. A method as in claim 1, wherein the magnitude of the current is reduced to a  
2 level that is substantially zero.
- 1 9. A method as in claim 1, further comprising:  
2 filtering a high frequency component on the termination node.
- 1 10. A method as in claim 9, wherein the high frequency component is filtered  
2 relative to ground.
- 1 11. A method as in claim 1, wherein the voltage at the termination node provides  
2 a reference to each of a plurality of buffers to receive the plurality of signals  
3 respectively.
- 1 12. An apparatus for signal line termination, the apparatus comprising:  
2 a termination node to terminate a plurality of signal lines;

3           a current sensor coupled to the termination node, the current sensor  
4                   determining a current flowing through a termination node; and  
5           a voltage regulator coupled with the termination node and the current sensor,  
6                   the voltage regulator adjusting a voltage at the termination node to  
7                   reduce a magnitude of the current.

1   13.    An apparatus as in claim 12, wherein the voltage regulator adjusts the  
2           voltage based on feedback from the current sensor.

1   14.    An apparatus as in claim 13, wherein the voltage regulator increases the  
2           voltage when the current is flowing out of the termination node from the  
3           signal lines; and, the voltage regulator decreases the voltage when the current  
4           is flowing into the termination node into the signal lines.

1   15.    An apparatus as in claim 12, wherein signals transmitted on the plurality of  
2           signal lines are substantially balanced.

1   16.    An apparatus as in claim 15, wherein the plurality of signal lines comprises a  
2           pair of differential signals.

1   17.    An apparatus as in claim 15, wherein an average of less than two lines are  
2           used to transmit each bit of information in the plurality of signal lines.

- 1 18. An apparatus as in claim 12, wherein the current results from terminating a  
2 first signal line carrying a balanced signal and a second signal line carrying a  
3 compliment of the balanced signal.
- 1 19. An apparatus as in claim 12, wherein the magnitude of the current is reduced  
2 to a level that is substantially zero.
- 1 20. An apparatus as in claim 12, further comprising:  
2 a filter coupled to the terminal node, the filter filtering a high frequency  
3 component on the termination node.
- 1 21. An apparatus as in claim 20, wherein the high frequency component is  
2 filtered relative to ground.
- 1 22. An apparatus as in claim 12, further comprising:  
2 a plurality of buffers to receive the plurality of signals respectively;  
3 wherein the voltage at the termination node provides a reference to each of  
4 the plurality of buffers.
- 1 23. A circuit for signal line termination, the circuit comprising:  
2 means for sensing a current flowing through a termination node which  
3 terminates a plurality of signal lines; and

4 means for adjusting a voltage at the termination node to reduce a magnitude  
5 of the current.

1 24. A circuit as in claim 23, wherein said means for adjusting comprises a  
2 voltage regulator to adjust the voltage based on an output of said means for  
3 sensing.

1 25. A circuit as in claim 24, wherein the voltage regulator increases the voltage  
2 when the current is flowing out of the termination node from the signal lines;  
3 and, the voltage regulator decreases the voltage when the current is flowing  
4 into the termination node into the signal lines.

1 26. A circuit as in claim 23, wherein signals transmitted on the plurality of signal  
2 lines are substantially balanced.

1 27. A circuit as in claim 26, wherein the plurality of signal lines comprises a pair  
2 of differential signals.

1 28. A circuit as in claim 26, wherein an average of less than two lines are used to  
2 transmit each bit of information in the plurality of signal lines.

- 1    29.    A circuit as in claim 23, wherein the current results from terminating a first  
2           signal line carrying a balanced signal and a second signal line carrying a  
3           compliment of the balanced signal.
- 1    30.    A circuit as in claim 23, wherein the magnitude of the current is reduced to a  
2           level that is substantially zero.
- 1    31.    A circuit as in claim 23, further comprising:  
2           filtering a high frequency component on the termination node.
- 1    32.    A circuit as in claim 31, wherein the high frequency component is filtered  
2           relative to ground.
- 1    33.    A circuit as in claim 23, wherein the voltage at the termination node provides  
2           a reference to each of a plurality of buffers to receive the plurality of signals  
3           respectively.
- 1    34.    An apparatus, comprising:  
2           a first input buffer;  
3           a first signal line termination;  
4           a first signal line coupled with said first input buffer and said first signal line  
5           termination, said first signal line to receive a first signal;

6 a second input buffer;  
7 a second signal line termination;  
8 a second signal line coupled with said second input buffer and said second  
9 signal line termination, said second signal line to receive a second  
10 signal;  
11 a first termination node coupled with said first signal line termination and  
12 said second signal line termination, said first termination node having  
13 a termination potential, said termination potential providing as a  
14 reference potential to said first input buffer and said second input  
15 buffer;  
16 a third input buffer;  
17 a third signal line coupled with the third input buffer, said termination  
18 potential providing a reference potential to said third input buffer,  
19 said third signal line to receive a third signal; and  
20 a second termination node coupled to the third signal line.

1 35. An apparatus as in claim 34, further comprising:  
2 a fourth input buffer; and  
3 a fourth signal line coupled with the fourth input buffer and the second  
4 termination node, said termination potential providing a reference  
5 potential to said fourth input buffer to receive a fourth signal;

1 36. An apparatus as in claim 34, further comprising:

2       a voltage regulator coupled between said first termination node and a system  
3               potential reference, said voltage regulator having a first output  
4               coupled with said first termination node; and  
5       a current sensor coupled to said first termination node, said current sensor  
6               having a second output coupled with said voltage regulator which  
7               adjusts the first output to reduce a current sensed by the current  
8               sensor.

1   37.   An apparatus as in claim 36, wherein when said current is flowing out of said  
2       first termination node, the first output of said voltage regulator is increased;  
3       when said current is flowing into said first termination node, the first output  
4       of said voltage regulator is decreased; and, wherein said current is reduced to  
5       a level that is substantially zero.

1   38.   An apparatus as in claim 36, further comprising:  
2       a filter connected between said second termination node and said system  
3               potential reference.

1   39.   An apparatus as in claim 34, wherein said first signal is substantially  
2       balanced; and, said second signal is an inverse of said first signal.

1   40.   An apparatus, comprising:  
2       an input buffer;



3 a signal line termination;  
4 a signal line coupled with said input buffer and said signal line termination,  
5 said signal line to receive a balanced signal;  
6 a termination node coupled with said signal line termination, said termination  
7 node having a termination potential;  
8 a reference node to provide a reference potential to said input buffer; and  
9 a voltage regulator coupled between said reference node and a system  
10 potential reference, said voltage regulator having a first output  
11 coupled with said reference node; and  
12 a current sensor coupled to said reference node, said current sensor having a  
13 second output coupled with said voltage regulator which adjusts the  
14 first output to reduce a current sensed by the current sensor.

1 41. An apparatus as in claim 40, wherein when said current is flowing out of said  
2 reference node, the first output of said voltage regulator is increased; when  
3 said current is flowing into said reference node, the first output of said  
4 voltage regulator is decreased; and, wherein said current is reduced to a level  
5 that is substantially zero.

1 42. An apparatus as in claim 40, further comprising:  
2 a filter connected between said reference node and said termination node.

1 43. An apparatus as in claim 40, further comprising:

2 a filter connected between said termination node and a system potential  
3 reference.

1 44. An apparatus, comprising:  
2 a differential input buffer;  
3 a differential signal line termination;  
4 a differential signal line coupled with said differential input buffer and said  
5 differential signal line termination, said differential signal line to  
6 receive a pair of differential signal;  
7 a reference node coupled with said differential signal line termination;  
8 a first input buffer coupled with said reference node, said first input buffer  
9 receiving a reference potential from said reference node;  
10 a first signal line termination;  
11 a first signal line coupled with said first input buffer and said first signal line  
12 termination, said first signal line to receive a first signal; and  
13 wherein said first and second signal line terminations terminate at different  
14 nodes.

1 45. An apparatus as in claim 44 further comprising:  
2 a voltage regulator coupled between said reference node and a system  
3 potential reference, said voltage regulator having a first output  
4 coupled with said reference node; and

5 a current sensor coupled to said reference node, said current sensor having a  
6 second output coupled with said voltage regulator which adjusts the  
7 first output to reduce a current sensed by the current sensor.

1 46. An apparatus as in claim 44, wherein when said current is flowing out of said  
2 reference node, the first output of said voltage regulator is increased; when  
3 said current is flowing into said reference node, the first output of said  
4 voltage regulator is decreased; and, wherein said current is reduced to a level  
5 that is substantially zero.

1 47. An apparatus as in claim 44, further comprising:  
2 a filter coupled between said differential signal line termination and a system  
3 potential reference.